

Discipline: Agriculture	Sub-discipline: Animal Science
General Course Title: Livestock Feeding and Nutrition	Min. Units: 3 Semester
Proposed Suffix: L	
<p>Course Description: The science of animal nutrition; the fundamentals of digestion and absorption in both ruminants and non-ruminants are discussed. The nutritive value of feeds as they relate to the formulation of livestock rations will be emphasized including by-product feeding. Laboratory required.</p>	
Required Prerequisites or Co-Requisites ¹	
Advisories/Recommended Preparation ²	
<p>Course Objectives: <i>At the conclusion of this course, the student should be able to:</i></p> <ul style="list-style-type: none"> • Identify the role of livestock feeding and its part in human nutrition. • Identify career requirements and potential opportunities leading to successful employment. • Identify cultural inputs that have shaped the livestock nutrition industry. • Apply changing nutritional requirements based upon animal physiological development. • Comprehend differences in digestive anatomy that contrast feeding practices. • Demonstrate and comprehend animal behavior as it relates to feeding practices. • Explain in a verbal and written format the role of nutrition an animal health and ultimately food safety. • Collect and calculate data used in ration formulation. • Define and recall biological and inorganic factors that impact feeding and nutrition industry. • Evaluate economic factors and trends in feeding. • Formulate rations with economic feasibility. • Identify various primary and by-product feeds, forms and processing techniques. • Analyze and comprehend various procurement strategies for feed stuff purchases. 	
<p>Course Content:</p> <ol style="list-style-type: none"> 1. Concepts of Nutrition <ol style="list-style-type: none"> a. Historical Advancements b. Animal nutrition and its role in society 2. Feed Analysis and Source <ol style="list-style-type: none"> a. Protein b. Carbohydrates c. Fats d. Vitamins e. Minerals f. Water <p>Livestock Feeding and Nutrition (Content Continued)</p>	

¹ Prerequisite or co-requisite course need to be validated at the CCC level in accordance with Title 5 regulations; co-requisites for CCCs are the linked courses that must be taken at the same time as the primary or target course.

² Advisories or recommended preparation will not require validation but are recommendations to be considered by the student prior to enrolling.

3. Animal Growth, Composition and Variability
 - a. Water
 - b. Energy
 - (1) Carbohydrates
 - (2) Fats
 - c. Proteins
 - d. Inorganic Elements
 - e. Vitamins

4. The Gastrointestinal Tract
 - a. Types of gastrointestinal tract
 - (1) Ruminant
 - (2) Monogastric
 - (3) Modified mono gastric
 - b. The role of G.I. secretions in the digestive process
 - c. Digestion and absorption
 - d. Transport of nutrients after catabolism
 - e. Fecal and urinary excretions

5. Nutrient Metabolism
 - a. Water
 - b. Carbohydrates
 - c. Lipids
 - d. Proteins
 - e. Inorganic Minerals
 - (1) Macro or primary elements
 - (2) Micro or trace elements
 - (3) Toxic elements and symptoms
 - f. Vitamins
 - (1) Fat soluble
 - (2) Water soluble

6. Applied Nutrition
 - a. Feeding standards and productivity
 - b. Feedstuff
 - c. Preparation and processing
 - d. Ration formulations
 - e. Non-caloric performance enhancers

7. Unit Seven: Feeding Practices
 - a. Beef cattle
 - b. Dairy cattle
 - c. Sheep
 - d. Swine
 - e. Horses
 - f. Goats

Laboratory Activities: Individual Laboratory Activities are designed to support course objectives.

Methods of Evaluation: Lecture
 Comprehensive Quizzes and Exams
 Written Critical Thinking Scenarios
 Problem Analysis and Solution
 Research and Term Papers

Methods of Evaluation: Laboratory
 Laboratory Skill Validation by Observation
 Laboratory Reports
 Laboratory Research Projects and Reports
 Laboratory Skill Practicum Exams

Typical Textbooks, Manuals, or Other Support Materials

Basic Animal Nutrition and Feeding 4th ed., Pond, W.G., John Wiley & Sons, ISBN 0-471-30864-1 Readability 13.7
Livestock Feeds and Feeding 4th ed., Church, D.C., Regents/Prentice Hall, ISBN 0-8403-8213-8
Animal Feeding and Nutrition. 7th ed., Juergens, Marshall H. Kendall/Hunt Pub. Company. ISBN 0-8403-8213-8
NRC Pamphlets, National Academy Press, ISBN 0-309-03779-04
Feeds and Nutrition Digest 2nd ed., Ensminger, M.E. et al Ensminger Publishing Co., ISBN 0-941218-08-02
Applied Animal Nutrition 1st ed., Cheeke, Peter R., Macmillan Publishing, ISBN 0-02322115-1
Kansas Swine Nutrition Guide, Cooperative Extension Service, Manhattan, Kansas File Code: Animal Science Swine 5-4
Feedstuffs Reference Issue. 1992, 191 S. Gary Ave., Carol Stream, IL. 60188

Statewide Articulation: Formally CAN AG 12, CPSLO-ASCI 220/DSCI 101, CPP-AVS 101/L, CSUF-A SCI 35, CSUC-ANSC 230, other universities as lower division elective

FDRG Lead Signature:

Date:

Mark E. Bender, PhD CSU Stanislaus

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Internal Tracking Number